



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

Deviation

SWA6A-2
Job Sheet 201325



Part No: SWA6A-2

Job Qty: 1 pcs

Part Name: Electric Swivel 6,000 lb Safe Work Load (2,721 Kg)



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 10/1/19

Job Tracking No:

Due Date: 11/1/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG SWA6A Rev G IPP Rev A 17.11.15 New issue DP Verify DD/IPP Rev.B 19.02.27 drawing revision DP Verify DD/IPP Rev. C 19.08.29 drawing revision DP Verify DD/IPP Rev. D 19.09.12 drawing revision DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	External Load - 1	1 pcs	11/1/19		0.00	2.00	External Load - 1		<i>Mach 2019-10-2</i>
							External Load - 2		
							External Load - 3		
110	External Load - 2 - B4B	1 pcs	11/1/19		0.00	2.00	External Load - 1 - B4B		<i>AP 2019/10/09</i>
							External Load - 2 - B4B		
							External Load - 3 - B4B		
120	QC 5	1 pcs	11/1/19		0.00	0.00	QC 5 - 10		
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		
							QC 5 - 9		
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
							QC 5 - 61		
							QC 5 - 81		
130	Packaging 3-1 - Stock - B4B	1 pcs	11/1/19		0.00	0.00	Packaging 3 - 1 - B4B		
							Packaging 3 - 2 - B4B		
							Packaging 3 - 3 - B4B		
							Packaging 3 - 4 - B4B		
							Packaging 3 - 5 - B4B		



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5206
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S221058



Part: SWA6A-2

Job No: 201325

Serial No/Batch: S221058

Revision: G

Inspector:

Exp Date:

DAS 30 2019 OCT 10 2019

Plex 10/1/19 10:18 AM Dart.lajeunesse.marie

				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	233 OCT 10 2019
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	DAS
				Packaging 3 - 36 - B4B	21
135	DC - 1 - B4B	1 pcs	11/1/19	0.00 0.00	DC - 1 - B4B
					DC - 2 - B4B
140	QC 21 - FG	1 pcs	11/1/19	0.00 0.00	QC 21 - FG - 21
					QC 21 - FG - 70
					QC 21 - FG - 53
Part Op 90 - Issue S/N Descriptions: 110 - -Assemble as per DWG. Sheet 1 ***All assembly to be done in accordance with SWA swivel manual*** Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG. Laser engrave dart logo as per DWG. 120 - (QC5- Inspect part completeness to step on W/O) Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG. 130 - (Identify as per dwg & Stock Location: <u>TBT</u>) Bag and tag 135 - (Document Control) Photocopy blue file OM & OOPM-SWA6A Rev H 140 - (QC21- Final Inspection - Work Order Release)					

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
188-FPSS-1032-5/8	Set Screw	1 Ea (1 ea)	90-External Load - 1	5037083
01121-724AM	2 Conductor 14 AWG,	6 ft (6 ea)	110-External Load - 2 - B4B	5197415
188-FSCS-1032-5/8	Flat socket cap Screw	4 Ea (4 ea)	110-External Load - 2 - B4B	5216680
C45-15-13	Bushing for SWA6A	1 Ea (1 ea)	110-External Load - 2 - B4B	5192687
EL-PLUG-F	3-Prong Female Spade Plug	1 Ea (1 ea)	110-External Load - 2 - B4B	5163923
EL-PLUG-M	3-Prong Male Spade Plug	1 Ea (1 ea)	110-External Load - 2 - B4B	5216731
SWA6A-100	Lower End	1 pcs (1 ea)	110-External Load - 2 - B4B	5167062
SWA6A-1100	Upper Bearing	1 pcs (1 ea)	110-External Load - 2 - B4B	5193969
SWA6A-1200	Lower DU Bearing	1 Ea (1 ea)	110-External Load - 2 - B4B	5176001
SWA6A-1300	Lower Thrust Bearing	1 Ea (1 ea)	110-External Load - 2 - B4B	5196384
SWA6A-1400	Circlip Internal	1 Ea (1 ea)	110-External Load - 2 - B4B	5176003
SWA6A-1800	Cover	1 pcs (1 ea)	110-External Load - 2 - B4B	5159099
SWA6A-1900	1/4" Female Spade Connector	4 Ea (4 ea)	110-External Load - 2 - B4B	5217494
SWA6A-200	Upper End	1 pcs (1 ea)	110-External Load - 2 - B4B	5159506
SWA6A-300	Bearing Housing	1 pcs (1 ea)	110-External Load - 2 - B4B	5161577
SWA6A-400	Thrust Washer	1 pcs (1 ea)	110-External Load - 2 - B4B	5194935
SWA6A-500	Semi Rings	1 pcs (1 ea)	110-External Load - 2 - B4B	5172010
SWA6A-600	Collar	1 pcs (1 ea)	110-External Load - 2 - B4B	5190894
SWA6A-700	Wire Clamp	2 pcs (2 ea)	110-External Load - 2 - B4B	5038666
SWA6A-800A	Connector Bushing	1 pcs (1 ea)	110-External Load - 2 - B4B	5044896
SWA6A-900A	Rotary Connector - 2 wire	1 pcs (1 ea)	110-External Load - 2 - B4B	5126634

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-External Load - 1	188-FPSS-1032-5/8	1	253	0
110-External Load - 2 - B4B	01121-724AM	6	219	0
	188-FSCS-1032-5/8	4	124	0
	C45-15-13	1	4	0
	EL-PLUG-F	1	11	0
	EL-PLUG-M	1	20	0
	SWA6A-100	1	6	0
	SWA6A-1100	1	4	0
	SWA6A-1200	1	15	0
	SWA6A-1300	1	7	0
	SWA6A-1400	1	24	0
	SWA6A-1800	1	5	0
	SWA6A-1900	4	116	0
	SWA6A-200	1	5	0
	SWA6A-300	1	8	0
	SWA6A-400	1	24	0
	SWA6A-500	1	7	0
	SWA6A-600	1	4	0
	SWA6A-700	2	12	0
	SWA6A-800A	1	6	0
	SWA6A-900A	1	8	0

Part Specifications

Specifications could not be found.

GREASE AEROSHELL No 7 (M130724)

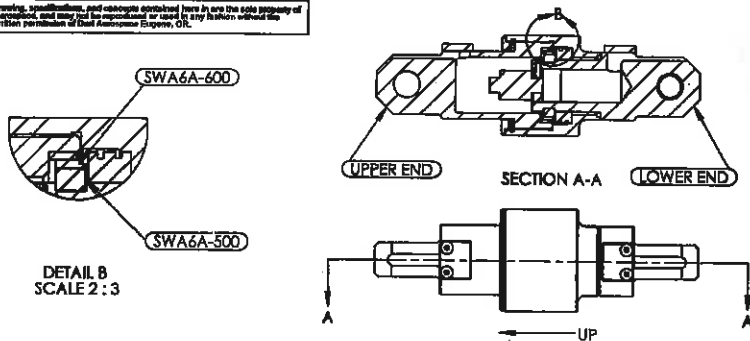
SILICONE (S208127)

LOCTITE 242 (S186572)

LOCTITE 620 (S194792)

Plex 10/1/19 10:18 AM Dart.lajeunesse.marie

This drawing, specification, and copyright material are the sole property of DART Aerospace, and may not be reproduced or used in any way without the prior written permission of DART Aerospace (Tucson, AZ).

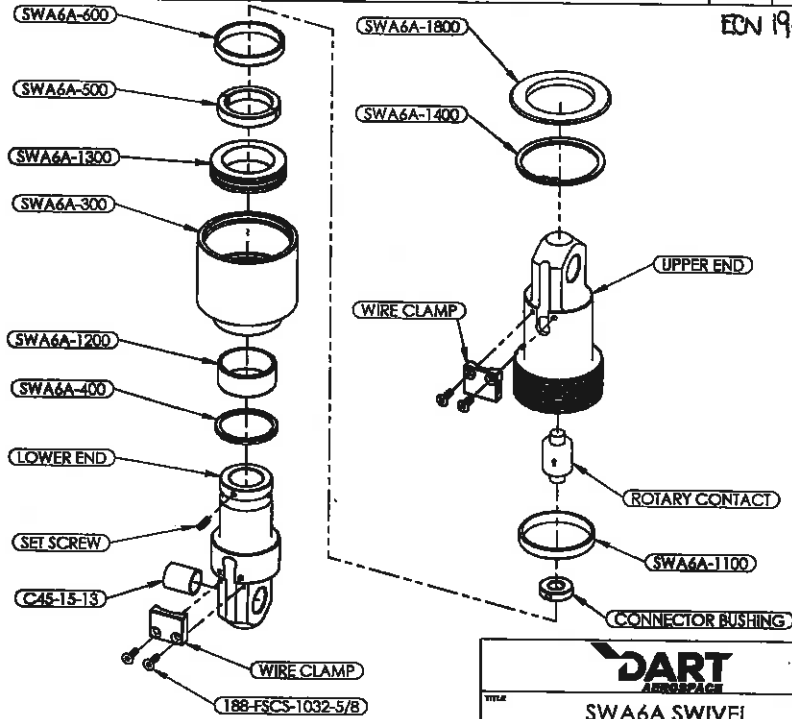


201325MLT
K-10-01

-2/ QTY.	-3/ QTY.	-4/ QTY.	-5/ QTY.	-6/ QTY.	B/O	Part #	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.
1	1	1	-	-	-	SWA6A-100	LOWER END	SS 17-4, H1075, H1120		1
-	-	-	1	-	-	SWA6A-110	LOWER END	SS 17-4, H1075/H1120		1
-	-	-	-	1	-	SWA6A-110A	LOWER END	SS 17-4, H1075/H1120		1
1	1	1	-	-	-	SWA6A-200	UPPER END	SS 17-4, H1075, H1120		1
-	-	-	1	-	-	SWA6A-210	UPPER END	SS 17-4, H1075/H1120		1
-	-	-	-	1	-	SWA6A-210A	UPPER END	SS 17-4, H1075/H1120		1
1	1	1	1	1	1	SWA6A-300	BEARING HOUSING	SS 17-4 H1120/H1075		1
1	1	1	1	1	1	SWA6A-400	THRUST WASHER	AL-BRONZE 630		1
1	1	1	1	1	1	SWA6A-500	SEMI-RING	17-4, H1120		1
1	1	1	1	1	1	SWA6A-600	COLLAR	17-4, H1120, H1075		1
2	-	-	-	-	-	SWA6A-700	WIRE CLAMP	6061-T6		1
-	-	2	2	-	-	SWA6A-700A	WIRE CLAMP	6061-T6		1
-	2	-	-	-	-	SWA6A-700B	WIRE CLAMP	6061-T6		1
-	-	-	-	2	-	SWA6A-700C	WIRE CLAMP	6061-T6		1
1	-	-	-	-	-	SWA6A-800A	CONNECTOR BUSHING			1
-	1	1	-	-	-	SWA6A-800B	CONNECTOR BUSHING			1
-	-	-	1	-	-	SWA6A-800C	CONNECTOR BUSHING			1
1	-	-	-	-	B/O	SWA6A-900A	ROTARY CONTACT	MERCOTAC #320		1
-	1	-	-	-	B/O	SWA6A-900B	ROTARY CONTACT	MERCOTAC #330		1
-	-	1	-	-	B/O	SWA6A-900C	ROTARY CONTACT	MERCOTAC #430		1
-	-	-	1	-	B/O	SWA6A-900D	ROTARY CONTACT	MERCOTAC #630		1
-	-	-	-	1	B/O	SWA6A-900E	ROTARY CONTACT	MERCOTAC #830		1
1	1	1	1	1	1	SWA6A-1100	UPPER DU BEARING			1
1	1	1	1	1	B/O	SWA6A-1200	LOWER DU BEARING	(KAMAM #M4520DU)		1
1	1	1	1	1	B/O	SWA6A-1300	ROLLER THRUST BEARING	(KAMAM B1107N)		1
1	1	1	1	1	B/O	SWA6A-1400	CIRCLIP	(KAMAM #N13000 300SP)		1
1	1	1	1	1	1	SWA6A-1800	COVER	S.S.		1
4	6	4	8	12	B/O	SWA6A-1900	1/4" FEMALE SPADE CONNECTOR	(MCMMASTER-CARR #4925K14)		1
-	-	4	4	4	B/O	SWA6A-2000	1/8" FEMALE SPADE CONNECTOR	(MCMMASTER-CARR #4925K14)		1
4	4	4	4	12	B/O	188-FSCS-1032-5/8	FLAT SOCKET CAP SCREW	S.S.	10-32 X 5/8 (MCMMASTER-CARR #P2210A303)	1
1	-	-	-	-	B/O	188-FPSS-1032-5/8	SET SCREW	S.S.	10-32 X 5/8 (MCMMASTER-CARR #P2210A303)	1
1	-	-	-	-	B/O	TEXCAN#01121-724AA	2 CONDUCTOR 14 AWG	6 FT. (TEXCAN #01121-724AA1)		N/S
-	1	-	-	-	B/O	TEXCAN#01121-734AA	3 CONDUCTOR 14 AWG	6 FT. (TEXCAN #01121-734AA3 OR 01004-06-047)		N/S
-	-	1	-	-	B/O	TEXCAN#01121-744AA	4 CONDUCTOR 14 AWG	6 FT. (TEXCAN #01121-744AA3)		N/S
-	-	-	1	-	B/O	TEXCAN#01121-754AA	6 CONDUCTOR 14 AWG	6 FT. (TEXCAN #01121-754AA3)		N/S
-	-	-	-	1	B/O	TEXCAN#12701-08-014	8 CONDUCTOR 14 AWG	6 FT. (TEXCAN #12701-08-014 OR McMaster-Carr #7061K38)		N/S
1	1	1	1	1	B/O	6001319	UP DECAL			N/S
-	1	1	-	-	B/O	188-FPSS-1032-1/2	SET SCREW	S.S.	10-32 X 1/2 (MCMMASTER-CARR #P4355A327)	
-	-	-	1	-	B/O	188-FPSS-1032-3/8	SET SCREW	S.S.	10-32 X 3/8 (MCMMASTER-CARR #P4355A328)	
-	-	-	-	1	B/O	188-FPSS-1032-1/4	SET SCREW	S.S.	10-32 X 1/4 (MCMMASTER-CARR #P4355A325)	
1	1	-	-	-	B/O	EL-PLUG-F	FEMALE PLUG	PE High Density	(MCMMASTER-CARR #7214K4)	
1	1	-	-	-	B/O	EL-PLUG-M	MALE PLUG	PE High Density	(MCMMASTER-CARR #7214K4)	
1	1	1	1	1	B/O	C45-15-13	SLEEVE	SAE 660 BRONZE	7/8 OD X 1 (MCMMASTER-CARR #6381K171)	
1	1	1	1	1	1	D2725-1	PLACARD		DART PLACARD	

REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
A		REPLACED 10 DECAL 6001318 WITH LASER BRCH	11/14/2012	JAG	
B		ADDED MISSING PART C45-15-13	8/8/2013	JAG	RW
3	15-0108	UPDATED TO NEW DRAFTING STANDARDS, ADDED LASER ENGRAVING SHEET. SWA6A-1900 CND CTRY: ASSY -4 WAS 6 & 4, ASSY -4 WAS 12 & 8, SWA6A-2000 ADDED P/N ASSY -4, -5, -6 QTY 4, EL-PLUG-F & EL-PLUG-M CND CTRY: ASSY -4, -5, -6 WAS 1 & 0, 188-FPSS-1032-5/8 CND CTRY: ASSY -3, -4, -5, -6 WAS 1 & 0, 188-FPSS-1032-1/4 ADDED P/N ASSY -4 QTY 1, 188-FPSS-1032-3/8 ADDED P/N ASSY -4 QTY 1, 188-FPSS-1032-1/2 ADDED P/N ASSY -3, -4 QTY 1, EL-PLUG-F, EL-PLUG-M, EL-PLUG-M, EL-PLUG-M CND CTRY: ASSY -2, -3, -4, -5, -6 WAS 6 & 1, ADDED B/O INFO 6 FT, 6001319 ADDED CUSTOMER REBUILD ONLY NOTE. CND P/N WAS 188-FPSS-1032-1/2 IS 188-FPSS-1032-5/8 ADDED B/O INFO #P2210A303.	5/15/2015	DPD	JAG
4	17-0114	CND P/N WAS EL-PLUG-F CND CTRY: ASSY -3, -4, -5, -6 WAS 1 & 0, CND B/O INFO WAS 6 FT, (TRUCK & AUTO SUPPLY #P2210A303) IS 6 FT, (POLAR WIRE #33204), ADDED NOTE 3.	5/10/2017	RJC	SM
E		WIRE CLAMP-700B ADDED FOR 3 WIRE CONFIG. WIRE P/N CHANGED, 2 WIRE ADDED, NOTES	2/13/2019	VM	VM
F		SEM INFO -8 WAS SWA6A-210 & SWA6A-210A, ITEM INFO -8 WAS SWA6A-700A & SWA6A-700C, QTY OF 188-FPSS-1032-5/8 INFO -8 WAS 6 & 8	2019-08-29	VM	VM
G		ITEM INFO -8 WAS SWA6A-110 & SWA6A-110A, QTY OF 188-FPSS-1032-5/8 INFO -8 WAS 8 & 12	2019-07-05	VM	VM

ECN 19-884

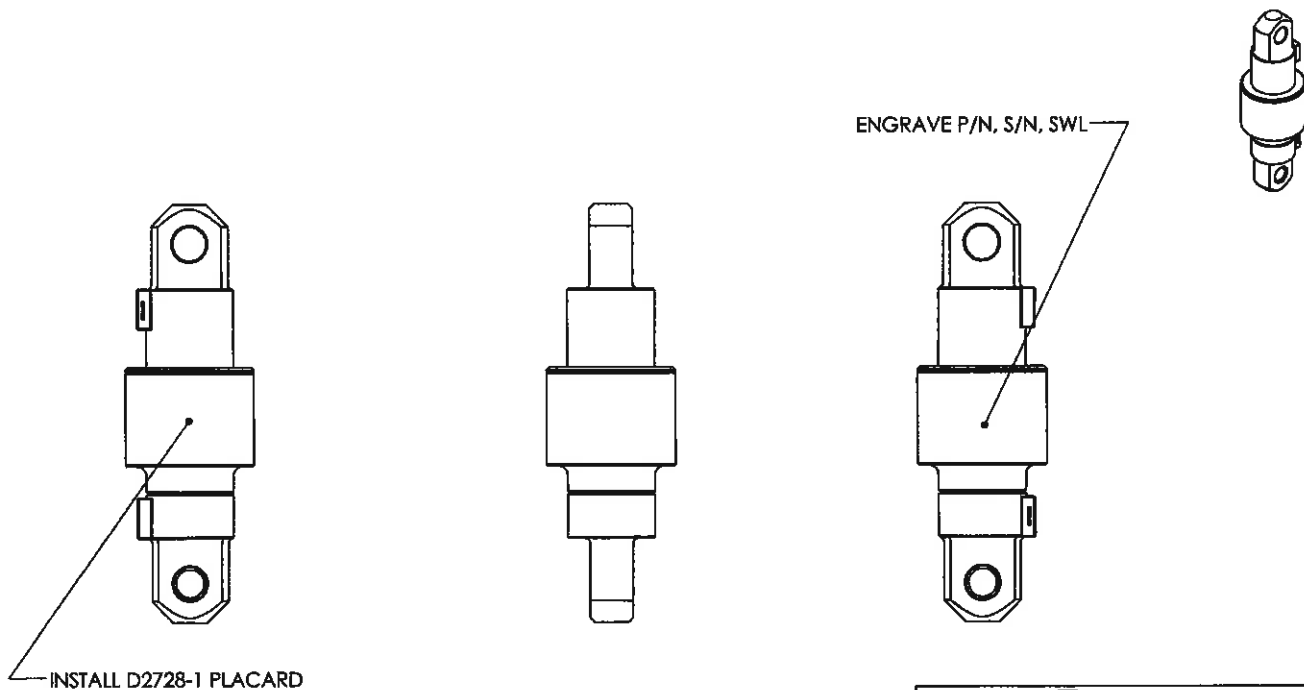


- NOTES:
- FOR CUSTOMER REBUILD ONLY.
 - ALL ASSEMBLY TO BE DONE IN ACCORDANCE WITH SWA SWIVEL MANUAL.
 - FOR 8 WIRE STRIP OUTER JACKET & REPLACE W/DOUBLE LAYER HEAT SHRINK.
 - USE HEATSHRINK TO INCREASE WIRE DIAMETER IF REQUIRED.
 - "SJOW" WIRE CAN BE USED AS A SUBSTITUTE TO TEXCAN/MCMMASTER CONDUCTOR & GAUGE MUST MATCH

DART AEROSPACE		REV G
SWA6A SWIVEL		
PART NO. SWA6A		REV G
MATL.	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS & DECIMALS	
FINISH	SURF. FINISH: 125 R.A. OR BETTER SURF. ACTUAL = 125 R.A. OR BETTER	
DRWN BY: GILBERT	CHECKED BY: SM 05/12/2017	
CHG APPR: AA 05/12/2017	DATE: 05/12/2017	
QA APPR: JL 05/12/2017	DATE: 05/12/2017	
APPROVED: [Signature]		
SCALE: N/A	DATE: 2/20/19	SHEET 1 OF 2

This drawing, specifications, and concepts contained here in are the sole property of Dart Aerospace, and may not be reproduced or used in any fashion without the prior written permission of Dart Aerospace Eugene, OR.

REVISIONS				DATE	INITIAL	APPROVED
REV	ECR	DESCRIPTION				
3	15-0105	ADDED LASER ENGRAVING SHEET.		5/15/2015	DPD	SM



DART AEROSPACE	
TITLE SWA6A SWIVEL	
DWG NO. SWA6A	REV G
MATL _____ REAT _____ TREAT _____ FINISH _____ SPEC _____	
DRAWN BY: GILBERT CHECKED: SM 05/11/2017 OPBS APPR: AA 05/12/2017 QA APPR: JL 05/24/2017 APPROVED: [Signature]	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± 1° X ± .1 SURFACES = 125/✓ 1. BREAK ALL SHARP EDGES .015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING 3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009 USED ON MODEL
SCALE N/A	DATE 2/20/19

Work Order 201325

Customer _____

Number of Wires 2Date 2019-10-7

Serial Number _____

Number of Cycles	Load (Lbs.)	Action	Pass/Fail
1	6,000	Check for Conductivity against all wires.	- Pass
1	6,000	Check all wires for grounding against swivel body.	- Pass
1	3,000	Check for Conductivity against all wires.	- Pass
1	3,000	Check all wires for grounding against swivel body.	- Pass
1	1,500	Check for Conductivity against all wires.	- Pass
1	1,500	Check all wires for grounding against swivel body.	- Pass
1	0	Check for Conductivity against all wires.	- Pass
1	0	Check all wires for grounding against swivel body.	- Pass

Test Conducted By: Michel Lalonde

Technician

Signature: Sylvie Boucher
QC 5 Small FAB / QA

DQA:

Date:

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed:

Date:

Work Order update only ☐

Work Order: <u>201325</u>	DISPOSITION		AGAINST DEPARTMENT/PROCESS			
Part No. <u>SWA### Swivels</u>	Rework ☐	Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☒	<i>Jan</i>
NCR No.	Scrap ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	
	Use-as-is ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	
	Suspected Unapproved ☐	Large Fab ☐	Composite ☐	Supplier ☐		

Date: <u>2019/10/09</u>	Step #: _____	QTY Effective: <u>1</u>	MRB (QSI042) Approval <i>M. Lee</i> Feb 01, 2018
-------------------------	---------------	-------------------------	--

Description Work Order Deviation	Disposition	Completed By <u>A. PATRY</u> 79-10-10
- Use a combination of heatshrink tubing and RTV Silicone to create a watertight seal around all electrical connections. - Use a D2728-1 Placard in place of the laser engraved Dart logo	These deviations are acceptable to carry out on the following swivels: - SWA3 - SWA6A - SWA10A - SWA15A - SWA25A - PSWA25A - 4440-0280002 <i>M. Lee</i> There is no impact on fit, form or function.	Lead hand / Supervisor Approval Verification <u>DAS</u> <u>30</u> <u>9-88</u> QC / QA Coordinator Approval <u>68</u> <u>9-88</u>
		OCT 10 2019

Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☒	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☒
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☒	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☒	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER: _____			
Misidentified ☐	Past Due ☐				